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ABSTRACT

Formative and summative evaluations in education are compared, and appropriate uses of these methods in program evaluation are discussed. The main purpose of formative evaluation is to determine a level of mastery of a learning task, along with discovering any part of the task that was not mastered. In other words, formative evaluation focuses the learner and instructor on specific learning necessary to obtain mastery. Summative evaluation is aimed at a more general assessment of the extent to which educational goals have been attained over an entire course or program of study. While formative evaluation highlights areas that need improvement or remediation, the goals of summative evaluation are: (1) grading or certifying students; (2) judging the effectiveness of students' learning; and (3) comparing curricula. Formative evaluation is a short-term effort of specific content, with focus on specific abilities. Summative evaluation, a more general long-term effort, focuses on transferable abilities, often cognitive in nature. Summative evaluation occurs when it is too late to modify the process under study. Formative test results may lead to conclusions that other methods would be more effective. Ideally, educators should incorporate both types of evaluation in program development. A chart summarizes differences between the two types of evaluation. (SLD)

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A Comparison of Formative and Summative Evaluation

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Running head: FORMATIVE AND SUMMATIVE EVALUATION

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A Comparison of Formative and Summative Evaluation

The use of evaluation in educational programs is essential for collecting and analyzing evidence needed to improve students' learning and teachers' instructional methods. According to Bloom (1971), evaluation can clarify important educational objectives and determine the extent to which students are achieving those objectives. Evaluation can serve as a process of quality control and help determine whether alternative educational procedures are equally effective in achieving specific educational goals.

Scriven (1967) sees evaluation as serving two different functions. Formative evaluation is used to develop and modify programs. Data is collected while the program is still in its developmental stage. The second main purpose of evaluation takes a summative approach. It is especially useful to educators who are responsible for making purchase or adoption decisions.

This paper presents a comparison of formative and summative evaluation. Appropriate uses of these methods in program evaluation are also discussed.

Purposes of Formative Evaluation

The main purpose of formative evaluation is to determine a level of mastery of a learning task, along with discovering any part of the task that was not mastered. Formative evaluation focuses the learner and the instructor on specific learning necessary to obtain mastery (Bloom, 1971). Appropriate "evidence" is gathered during development and field testing of a curriculum

so revisions can be made before the curriculum is finalized.

Scriven (1967) suggests that selection of a unit of learning be the first step in the process of formative evaluation. (this unit should encompass more than one lesson). The unit is divided into content and behavior areas, then analyzed to determine which are the most important elements. This process provides both student and teacher with knowledge of the subject matter, behaviors and quality of learning for each unit. Formative evaluation used in this way can forecast results of future summative evaluation, as well as aid in making learning more effective before any summative evaluation is undertaken.

Purposes of Summative Evaluation

Summative evaluation is aimed at a more general assessment of the extent to which educational goals have been attained over an entire course or program of study. This type of evaluation is employed at the end of a course, semester or program in order to grade, certify, evaluate an entire process, or research the effectiveness of a course of study or curriculum. Judgments are made about the curriculum, student, or instructor with regard to the effectiveness of learning after the learning or instruction has been completed.

Alkin's Comparison of Formative and Summative Evaluation

Alkin (1974) discusses differences between formative and summative evaluation methods from four stages of program development:

1. Developmental stage of the project

Educational projects require cycles of development during

which changes can be made. This period of refinement calls for formative evaluation. Before summative evaluation is used, the project should be well-defined and firmly in place.

2. Evaluator's relationship to project

The evaluator must play an active, ongoing role in formative evaluation. On the other hand, the summative evaluator must be objective so a degree of impartiality and distance is maintained.

3. Design of the evaluation

Alkin sees formative evaluation as flexible and exploratory, with the evaluator (usually an in-house evaluator) focusing on single components of the program. Continual feedback is a characteristic of formative evaluation. Summative evaluation requires a well-defined evaluation framework that can provide answers regarding a program's worth. The summative evaluator (an external evaluator not associated with the development team) engages in a generalized overview of the program, while the formative evaluator examines pieces of the program as they relate to specific goals and objectives.

4. Instrumentation

Methods of evaluation used at the formative level should be varied. Summative instruments should have a track record of reliability and validity in the target population. Selection of summative methods should be influenced by potential users and program sponsors.

Data used in formative evaluation are collected through questionnaires, observation and interviews. Research control and

generalizability of results are incorporated into summative evaluation designs (Borg & Gall, 1983).

The following chart defines differences between formative and summative evaluation strategies.

	Formative	Summative
Major Purposes	- a quality control method in which the effectiveness of the learner-teacher process can be analyzed at every step and immediate connections made	- a tool in educational practice to determine whether alternative procedures are effective in achieving educational ends
Goals	1. performed to determine how well students have mastered various elements in a curriculum, subject or program 2. highlights areas that need improvement/ remediation	1. for grading/certifying students 2. to judge the effectiveness of students' learning 3. to compare curricula
Objectives	- short term - specific content - focus on specific abilities	- long term - less specific in regard to content; more general - focus on transferable abilities (often cognitive in nature)

	Formative	Summative
When Conducted	-takes place at frequent intervals, while processes are amenable to change	- occurs at end of unit (it is too late to modify the process)
Tests	- achievement tests over specific units of learning (there is usually a high degree of correlation between results from several formative tests and later performance on summative exams) - given at frequent intervals - analyze and diagnose what must still be learned	- intervals that tests are administered are not as frequent as those for formative exams - analyze and diagnose extent to which each learner has attained objectives
Test Results	- diagnostic - progressive tests - reveal particular difficulties or skills that still require work - refer student to specific process or instructional aid to alleviate difficulties	- achievement tests - provide a general assessment of whether larger outcomes have been attained over the entire course or program - to grade pupils and to report to parents and administrators

	Formative	Summative
Test Results	- no grades (consider evaluation as part of learning process) - use mastery/non-mastery label (e.g., pass/fail with 80-85% indicative of mastery) - also provide feedback to instructors as to what components of the instructin need revising	- scores on specific skills inform students as to which content and skill areas they are competent in
Functions	- for pacing student learning - for breaking down the learning sequence - provides positive reinforcement to students - predicts summative success	- for assigning grades - for certification of skills - predicts success in future courses/programs - compares outcomes of different groups, teachers or methods

Uses of Formative Evaluation in Program Evaluation

Perhaps the most effective use of formative evaluation is in pacing student learning. Goals are developed for the learning process along with a time schedule for each unit. By breaking the whole learning sequence into smaller units, with students expected to have prepared for each unit, learning can be more successful. Constant feedback to students about their progress further enhances learning.

Formative test results may lead to suggestions that other methods of learning would be more effective (e.g., assign alternative tutorial guidance, instructional materials or a programmed unit).

Instructors can use formative evaluation to alter instructional methods and to review concepts about which students are unclear. Teachers might also compare formative evaluation results from a new student population with those obtained from previous groups for quality control reasons (e.g., is the current class doing as well as the previous class?, better?)

Uses of Summative Evaluation in Program Evaluation

Summative evaluation is often used for making instructional decisions. The most common use of summative test results is for assigning grades. Test results can certify that a student has specific knowledge, ability and skills (these situations usually occur in a technical environment). Summative evaluation can also provide feedback to students, although this usually occurs after the course or program is completed.

Summative tests can be a useful tool for academic guidance, when employed at the end of a course to predict success in a subsequent class. Summative exams are given at the end of a year (especially at the elementary school level) by the instructor of the next grade to determine where to begin instruction of an individual or group.

Ideally, educators should incorporate both formative and summative evaluation models in program development and review. Evaluation occurring at each step of the program will help ensure the most successful student learning outcomes.

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